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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,658	04/08/2004	Eric B. Norman	014939-002500	8774

20350 7590 01/10/2006

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EXAMINER	
PALABRICA, RICARDO J	
ART UNIT	**PAPER NUMBER**
3663	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,658	NORMAN ET AL.	
	Examiner	Art Unit	
	Rick Palabrica	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8,10-15,17-19,23,24,26,27 and 29-69* is/are pending in the application.

4a) Of the above claim(s) *4, 5, 8, 10-12, 15, 19, 24, 27, and 30--60* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6,13,14,17,18,23,26,29 and 61-69* is/are rejected.

7)☒ Claim(s) *17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's 12/12/05 Amendment, which directly amended claims 1, 6, 14, 17, 18, 23, and 29, added new claims 61-69, and traversed the art rejection of the claims, is acknowledged.

Response to Arguments

2. Applicant traversed applied prior art Schoenig, Untermyer, and Bernard et al. on the ground that neither one of them discloses collecting energy nor temporal data from gamma rays. The Examiner disagrees.

Schoenig discloses accumulating gamma ray counts for a plurality of points along each uranium-containing fuel rod to determine the enrichment (see paragraph bridging cols. 6 and 7). Each of these gamma ray counts is obtained over a specific counting time.

Applicant does not define what is encompassed by the term, "energy data". In Schoenig's invention, the gamma ray counts inherently include data on energies of the gamma rays because only those gamma rays whose energies exceed the detector threshold are counted. Thus, absent such definition, data on the energies of the counted gamma rays in Schoenig reads on Applicant's claim language, "energy data."

Applicant has neither defined the term, "temporal data", nor specified the time duration associated with so-called temporal data. Thus, absent Applicant's definition of the term, "temporal data", and the data regarding the time to accumulate a gamma ray count and/or the time required to scan each and/or all fuel rods in Schoenig, reads on Applicant's claim language, "temporal data."

The same argument as above applies to Untermyer or Bernard et al.

Untermyer discloses counting fission product gamma emitters using a pulse height sorter and a multichannel analyzer (see col. 5, lines 31+). Either one of the pulse height sorter or multichannel analyzer provides gamma ray energy data because only those exceeding a given energy can be counted. The multichannel analyzer also provides temporal data, e.g., counting time.

Bernard et al. disclose measuring spontaneous and delayed gamma radiation to characterize fissile material (see col. 2, lines 33+). Again, such measurements inherently provide energy and temporal data.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3, 6, 13, 14, 17, 18, 23, 26, 29, and 61-69 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1 and 29 recite, "irradiating the container with an energetic beam which induces fission in special nuclear materials." There is neither an adequate description nor enabling disclosure as what is all encompassed by the term, "energetic beam." The claims do not specify either the type or energy of the so-called "energetic beam" that causes fissions. It is a notorious scientific fact that not all particles having non-zero energy can cause fissions of special nuclear materials. Only those particles with certain minimum energy sufficient to overcome the repulsion and/or binding energy of the nucleus can induce fissions in said materials.

Claims 1 and 29 recite, "detecting gamma rays outside the container and recording energy data and temporal data." There is neither an adequate description nor enabling disclosure as to what is all encompassed by the terms, "energy data" and "temporal data." For example, does energy data include the energy of the irradiating beam, the energy of gamma rays from background radiation, then energy from induced radioactivity of the container or what? The same remarks apply to the so-called "temporal data."

Still as to claims 1 and 29, there is neither an adequate description nor enabling disclosure as to how and in what manner detecting gamma rays outside the container alone, can determine the presence of special nuclear materials when their energy and half-life differs from threshold values. Note that gamma rays outside the container can come from sources other than special nuclear materials that may be in the container. Such other sources include the atmosphere around the container, prior radioactive contamination of the container, induced radiation of the container due to beam

irradiation, etc. Note that any one of these sources can produce gamma rays greater than an energy threshold and effective half-life less than a half-life threshold, which thresholds are not specified in the claims.

As to claims 1 and 62, there is neither an adequate description nor enabling disclosure as to how and in what manner one determines the so-called, "half-life threshold." Applicant himself admits that the effective half-life depends upon the length or duration of irradiation, and the start time and counting interval (see page 4, lines 23+ in the specification). It is also a notorious scientific fact that this effective half-life also depends on the specific elements of the special nuclear material in the container, and whether only one element or multiple elements are present in said material.

Claim 65 recites the limitation, "comparing the time dependent gamma ray yields with a half-life threshold value." There is neither an adequate description nor enabling disclosure as to how and in what manner one can obtain meaningful information from comparing gamma ray yield with a half-life value. These two quantities relate to different properties, i.e., gamma ray yield represents activity (e.g., counts/min) and half-life represents decay time (e.g., min). Applicant's limitation is similar to comparing apples and oranges.

4. Claims 1-3, 6, 13, 14, 17, 18, 23, 26, 29, and 61-69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete, and its metes and bounds cannot be determined, particularly in regard to the terms "energetic beam", "energy data", and "temporal data." It is not known what all is meant by or encompassed by these terms.

The claims are vague, indefinite and incomplete, and its metes and bounds cannot be determined because no criterion is provided as to how to select the value of the effective half-life threshold for the gamma rays.

Claims 1 and 29 recite the limitation, "recording energy data and temporal data". The claims are vague, indefinite and incomplete as to what these data pertain, e.g., data from gamma rays emitted by the special nuclear materials alone or from all sources including, e.g., the atmosphere, container contamination, etc.

Claim 62 is vague, indefinite and incomplete, and its metes and bonds cannot be determined because it is unclear what is the irradiating means that causes the fissions in the special nuclear materials, e.g., is it light, pressurized water, sound, nuclear particles or what?

5. Claims 1-3, 6, 13, 14, 17, 18, 23, 26, 29, and 61 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps relate to separating the data on gamma rays emitted by any special nuclear material in the container from the data on gamma rays from other sources, e.g., induced radiation of the container. See also section 3 above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 6, 14, 17, 18, 23, 26, 29, and 61-68 are rejected under 35 U.S.C. 102(b) as being anticipated by either Schoenig et al. or Untermyer.

The reasons are the same as those given in section 3 of the 6/8/05 Office action, as clarified in section 2 above, which reasons are herein incorporated.

As to claims 17 and 18, the Examiner interprets these claims as being dependent from claim 15 and not from the canceled claim 16. See also section 9 below.

As to claim 65, the Examiner interprets the claim limitation as comparing the gamma ray yield with an energy threshold instead of a half-life threshold. See also section 4 above.

7. Claims 1, 2,13, 62 and 69 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernard et al.

The reasons are the same as those given in section 4 of the 6/8/05 Office action, as clarified in section 2 above, which reasons are herein incorporated.

8. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Untermyer.

The reasons are the same as those given in section 5 of the 6/8/05 Office action, as clarified in section 2 above, which reasons are herein incorporated.

Claim Objections

9. Claims 17 and 18 objected to because of the following informalities: They are recited as dependent from canceled claim 16. They should probably depend from claim 15. Appropriate correction is required.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R Palabrica

RJP
January 5, 2006